

GLOSSARY

Section I Abbreviations

A-E.....	Architect-Engineer
AM/FM	Automated Mapping/Facilities Management
AR	Army Regulation
ARAR	Applicable or Relevant and Appropriate Requirement
ARB	Anomaly Review Board
ASR.....	Archives Search Report
ASSHP	Abbreviated Site Safety and Health Plan
BRAC.....	Base Realignment and Closure
CADD	Computer-aided Design and Drafting
CERCLA.....	Comprehensive Environmental Response, Compensation and Liability Act
CESO	Corps of Engineers Safety Office
CFR.....	Code of Federal Regulations
CO	Contracting Officer
COR	Contracting Officer's Representative
CV	Cesium Vapor
CWM	Chemical Warfare Materiel
DA Pam.....	Department of the Army Pamphlet
DDESB	Department of Defense Explosives Safety Board
DOD.....	Department of Defense
DOT	Department of Transportation
DQO.....	Data Quality Objective
EE/CA	Engineering Evaluation/Cost Analysis
EM.....	Engineer Manual
EOD	Explosive Ordnance Disposal
EP	Engineer Pamphlet
EPP.....	Environmental Protection Plan
ER	Engineer Regulation
ESS.....	Explosives Safety Submission
FAR.....	Federal Acquisition Regulation
FD	Frequency Domain
FDEM	Frequency Domain Electromagnetics
FOST.....	Finding of Suitability to Transfer
FUDS	Formerly Used Defense Site
GD&S	Geospatial Data and Geospatial Data Systems
GDS.....	Geospatial Data System
GIS	Geographic Information System

23 Jun 00

GPS	Global Positioning System
HAZWOPER	Hazardous Waste Operations and Emergency Response
HQUSACE.....	Headquarters, United States Army Corps of Engineers
HTRW	Hazardous, Toxic, and Radioactive Waste
IDW.....	Investigative Derived Waste
INPR	Inventory Project Report
IRP	Installation Restoration Program
JPG.....	Jefferson Proving Ground
LIS.....	Land Information Systems
MCACES	Micro Computer Aided Cost Engineering System
MCE.....	Maximum Credible Event
MCX	Mandatory Center of Expertise
MPM	Most Probable Munition
MSC	Major Subordinate Command
NAD83.....	North American Datum of 1983
NAVD88.....	North American Vertical Datum of 1988
NCP.....	National Oil and Hazardous Substance Pollution Contingency Plan
NDAI.....	No DOD Action Indicated
NEW	Net Explosive Weight
NOSE	No Significant Effects
NTCRA.....	Non-Time Critical Removal Action
ODC	Ordnance Demolition Container
OE	Ordnance and Explosives
OECert	Ordnance and Explosives Cost Estimating Risk Tool
OSHA.....	Occupational Safety and Health Administration
PAE.....	Preliminary Assessment of Eligibility
Pd	Probability of Detection
Pfa	Probability of False Alarm
PLS.....	Professional Land Surveyor
PM.....	Project Manager
POC.....	Point of Contact
PPE.....	Personal Protective Equipment
QA.....	Quality Assurance
QC	Quality Control
QCI.....	Quality Conformance Inspections
Q-D	Quantity-Distance
RAC	Risk Assessment Code
RACER	Remedial Action Cost Engineering and Requirements System
RECON	Reconnaissance
RLS	Registered Land Surveyor
SI.....	Site Inspection

SOW.....	Statement of Work
SSHP.....	Site Safety and Health Plan
TCRA.....	Time Critical Removal Action
TD	Time Domain
TDEM	Time Domain Electromagnetics
TM.....	Technical Manual
TNT.....	Trinitrotoluene
TSD	Team Separation Distance
TSSDS	Tri-Service Spatial Data Standard
USACE	United States Army Corps of Engineers
USAESCH	U.S. Army Engineering and Support Center, Huntsville
USATCES.....	U.S. Army Technical Center for Explosives Safety
UXO.....	Unexploded Ordnance
UXOSO.....	Unexploded Ordnance Safety Officer
UXOQCS	UXO Quality Control Specialist

Section II

Terms

Action Memorandum

Approves time-critical removal action and also concludes the engineering evaluation/cost analysis. Provides a concise, written record of the decision to select an appropriate removal action. As the primary decision document, it substantiates the need for a removal action, identifies the proposed action, and explains the rationale for the removal action selected.

Active Installations

Installations under the custody and control of DOD. Includes operating installations, installations in a standby or layaway status, and installations awaiting closure under the Base Realignment and Closure (BRAC) legislation.

Active Range

A military range that is currently in service and is being regularly used for range activities. (40 CFR 266.201)

Administrative Record

The body of documents that “forms the basis” for the selection of a particular response at a site. Documents that are included are relevant documents that were relied upon in selecting the response action as well as relevant documents that were considered but were ultimately rejected. (ER 1110-1-8153)

Anomaly

Any item that is seen as a subsurface irregularity after geophysical investigation. This irregularity should deviate from the expected subsurface ferrous and non-ferrous material at a site (i.e., pipes, power lines, etc.). (EP 1110-1-18)

Anomaly Avoidance

Techniques employed by EOD or UXO personnel at sites with known or suspected OE to avoid any potential surface UXO and any subsurface anomalies. This usually occurs at mixed hazard sites when HTRW investigations must occur prior to execution of an OE removal action. Intrusive anomaly investigation is not authorized during ordnance avoidance operations. (ER 1110-1-8153)

Anomaly Review Board (ARB)

The ARB is a technical group established to review decisions and recommendations made by the OE project team on the detection and evaluation of subsurface anomalies. ARBs should be used only in exceptional circumstances, such as at CWM sites.

Applicable or Relevant and Appropriate Requirements (ARARs)

Applicable requirements are cleanup standards, standards of control, and other substantive environmental protection requirements promulgated under federal or state environmental law that specifically address a hazardous substance, pollutant, contaminant, remedial action, location or other circumstance found at a CERCLA site. Relevant and appropriate requirements are cleanup standards that while not “applicable”, address situations sufficiently similar to those encountered at a CERCLA site that their use is well-suited to the particular site.

Approval Memorandum

Secures management approval to conduct the engineering evaluation/cost analysis.

Archives Search Report (ASR)

A detailed investigation to report on past OE activities conducted on an installation. The principal purpose of the Archives Search is to assemble historical records and available field data, assess potential ordnance presence, and recommend follow-up actions at a DERP-FUDS. There are four general steps in an Archives Search: records search phase, site safety and health plan, site survey, archives search report including risk assessment.

Base Realignment and Closure (BRAC)

Program governing the scheduled closing of Department of Defense sites. (Base Closure and Realignment Act of 1988, Public Law 100-526, 102 Stat. 2623, and the Defense Base Closure and Realignment Act of 1990, Public Law 101-510, 104 Stat. 1808)

Chemical Warfare Materiel (CWM)

An item configured as a munition containing a chemical substance that is intended to kill, seriously injure, or incapacitate a person through its physiological effects. Also includes V- and G- series nerve agent, H- series blister agent, and lewisite in other- than-munition configurations. Due to their hazards, prevalence, and military-unique application, chemical agent identification sets (CAIS) are also considered CWM. CWM does not include: riot control agents, chemical herbicides; smoke and flame producing items; or soil, water, debris, or other media contaminated with chemical agent. (HQDA Interim Guidance for Biological Warfare Materiel and Non-Stockpile Chemical Warfare Materiel Response Activities)

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA)

CERCLA authorizes federal action to respond to the release or threatened release of hazardous substances into the environment or a release or threat of release of a pollutant or contaminant into the environment that may present an imminent or substantial danger to public health or welfare.

Construction Support

Support provided by qualified UXO personnel during construction activities at potential OE sites to ensure the safety of construction personnel from the harmful effects of UXO. When a determination is made that the probability of encountering UXO is low (e.g., current or previous land use leads to an initial determination that OE may be present), a minimum of a two person UXO team will stand by in case the construction contractor encounters a suspected UXO. When a determination is made that the probability of encountering a UXO is moderate to high (current or previous land use leads to a determination that OE was employed or disposed of in the parcel of concern, e.g., open burn and open detonation areas, maneuver areas, etc.), UXO teams are required to conduct subsurface UXO clearance for the known construction footprint either in conjunction with the construction contractor or prior to construction intrusive activities. The level of effort will be determined on a case-by-case basis in coordination with the OE MCX. (ER 1110-1-8153)

Control Markers

Project control markers may consist of markers and/or benchmarks established by any federal, state, local, or private agency with positional data within the minimum acceptable accuracy standards prescribed by the project team.

Conventional Ordnance and Explosives

The term “conventional OE” refers to ordnance and explosives (see definition) other than CWM, BWM and nuclear ordnance. (ER 1110-1-8153)

Data Quality Objective

A Data Quality Objectives (DQO) is a qualitative and quantitative statement developed to clarify study objectives, define the type of data needed, and specify the tolerable levels of potential decision errors. A DQO is used as the basis for establishing the type, quality and quantity of data needed to support the decisions that will be made.

Defense Environmental Restoration Program

Established in 1984, DERP promotes and coordinates efforts for the evaluation and cleanup of contamination at Department of Defense installations. (10 U.S.C. 2701)

Design Center

A specified USACE field office assigned a singular technical mission that is permanent and USACE-wide in scope. The designated office is to be considered the “lead activity” in a specialized area where capability needs to be concentrated for maximum effectiveness, economy, and efficiency. The OE Design Center (in coordination with the PM) will execute all phases of the OE response project after the approval of the INPR unless the removal action is transferred to an approved district. Only the USAESCH OE Design Center is authorized to execute any phase of a Non-Stockpile CWM response. (ER 1110-1-8153)

Engineering Evaluation/Cost Analysis (EE/CA)

An EE/CA is prepared for all non-time-critical removal actions as required by Section 300.415(b)(4)(i) of the NCP. The goals of the EE/CA are to identify the extent of a hazard, to identify the objectives of the removal action, and to analyze the various alternatives that may be used to satisfy these objectives for cost, effectiveness, and implementability.

Exclusion Zone

A safety zone established around an OE work area. Only project personnel and authorized, escorted visitors are allowed within the exclusion zone. Examples of exclusion zones are safety zones around OE intrusive activities and safety zones where OE is intentionally detonated. (DDESB-KO, 27 January 1990)

Explosive Ordnance Disposal (EOD)

The detection, identification, field evaluation, rendering safe, recovery, and final disposal of unexploded ordnance or munitions. (EP 1110-1-18)

Explosives Safety Submission (ESS)

The document which serves as the specifications for conducting work activities at the project. The ESS details the scope of the project, the planned work activities, and potential hazards (including the maximum credible event) and the methods for their control. (EP 1110-1-18)

Explosive Soil

Explosive soil refers to mixtures of explosives in soil, sand, clay, or other solid media at concentrations such that the mixture itself is explosive.

(a) The concentration of a particular explosive in soil necessary to present an explosion hazard depends on whether the particular explosive is classified as “primary” or “secondary.” Guidance on whether an explosive is classified as “primary” or “secondary” can be obtained from the OE MCX or Chapters 7 and 8 of TM 9-1300-214, Military Explosives.

(b) Primary explosives are those extremely sensitive explosives (or mixtures thereof) that are used in primers, detonators, and blasting caps. They are easily detonated by heat, sparks, impact, or friction. Examples of primary explosives include Lead Azide, Lead Styphnate, and Mercury Fulminate.

(c) Secondary explosives are bursting and boosting explosives (i.e., they are used as the main bursting charge or as the booster that sets off the main bursting charge). Secondary explosives are much less sensitive than primary explosives. They are less likely to detonate if struck or when exposed to friction or to electrical sparks. Examples of secondary explosives include Trinitrotoluene (TNT), Composition B, and Ammonium Picrate (Explosive D).

(d) Soil containing 10 percent or more by weight of any secondary explosive or mixture of secondary explosives is considered “explosive soil.” This determination was based on

EM 1110-1-4009
23 Jun 00

information provided by the USAEC as a result of studies conducted and reported in USAEC Report AMXTH-TE-CR 86096.

(e) Soil containing propellants (as opposed to primary or secondary high explosives) may also present explosion hazards. (EP 1110-1-8153)

Formerly Used Defense Sites (FUDS)

FUDS includes those properties previously owned, leased, or otherwise possessed by the U.S. and under the jurisdiction of the Secretary of Defense; or manufacturing facilities for which real property accountability rested with DOD but were operated by contractors (Government owned - contractor operated) and which were later legally disposed of. FUDS is a subprogram of the DERP. Restoration of military land was extended to formerly used sites in 1983 under Public Law 98-212 (DOD Appropriations Act of FY84).

Geophysical Techniques

Techniques utilized for the detection and measurement of buried anomalies (e.g., ferromagnetic indicators and ground penetrating radar) to investigate the presence of munitions. (EP 1110-1-18)

Hazardous, Toxic, and Radioactive Waste (HTRW) Activities

HTRW activities include those activities undertaken for the Environmental Protection Agency's Superfund program, the Defense Environmental Restoration Program (DERP), including Formerly Used Defense Sites (FUDS), and Installation Restoration Program (IRP) sites at active DOD facilities, HTRW actions associated with Civil Works projects, and any other mission or non-mission work performed for others at HTRW sites. (EP 1110-1-18)

Intentional Detonation

An intentional detonation is a planned, controlled detonation.

Intrusive activity

An activity which involves or results in the penetration of the ground surface at an area known or suspected to contain OE. Intrusive activities can be of an investigative or removal action nature. (EP 1110-1-18)

Inventory Project Report (INPR)

The report resulting from the preliminary assessment of eligibility. The INPR includes data as well as a recommendation for further action and guides investigators through further site studies. Documents whether DOD is responsible for contamination at a FUDS. (EP 1110-1-18)

Mandatory Center of Expertise (MCX)

An MCX is a USACE organization that has been approved by HQUSACE as having a unique or exceptional technical capability in a specialized subject area that is critical to other USACE commands. Specific mandatory services to be rendered by an MCX are identified on the MCX's

homepage at <http://www.hnd.usace.army.mil/ow>. These services may be reimbursable or centrally funded. The USAESCH is the OE MCX for the USACE. (ER 1110-1-8153)

Maximum Credible Event (MCE)

The worst single event that could occur at any time, with maximum release of a chemical agent from a munition, container, or process as a result of unintended, unplanned, or accidental occurrence. (HQDA Interim Guidance for Biological Warfare Materiel (BWM) and Non-Stockpile Chemical Warfare Materiel (CWM) Response Activities)

Military Munitions

All ammunition products and components produced or used by or for the U.S. DOD or the U.S. Armed Services for national defense and security, including military munitions under the control of the DOD, the US Coast Guard, the US DOE, and National Guard personnel. The term military munitions includes: confined gaseous, liquid, and solid propellants, explosives, pyrotechnics, chemical and riot control agents, smokes, and incendiaries used by DOD components, including bulk explosives and chemical warfare agents, chemical munitions, rockets, guided and ballistic missiles, bombs, warheads, mortar rounds, artillery ammunition, small arms ammunition, grenades, mines, torpedoes, depth charges, cluster munitions and dispensers, demolition charges, and devices and components thereof. Military munitions do not include wholly inert items, improvised explosive devices, and nuclear weapons, nuclear devices, and nuclear components thereof. However, the term does include non-nuclear components of nuclear devices, managed under DOE's nuclear weapons program after all required sanitization operations under the Atomic Energy Act of 1954, as amended, have been completed. (ER 1110-1-8153)

Most Probable Event (MPE)

The most likely event, as a result of an accidental, unplanned, or unintended detonation of an item of ordnance, that could occur during OE activities. The event must be realistic with reasonable probability of occurrence. (EP 1110-1-18)

National Oil and Hazardous Substance Pollution Contingency Plan (NCP)

Revised in 1990, the NCP provides the regulatory framework for responses under CERCLA. The NCP designates the Department of Defense as the removal response authority for ordnance and explosives hazards. (EP 1110-1-18)

Non-Stockpile Chemical Warfare Materiel

CWM (see definition) that is not included in the chemical stockpile. Non-stockpile CWM is divided into five categories: buried CWM, recovered chemical weapons (items recovered during range clearing operations, from chemical burial sites, and from research and development testing), former chemical weapon production facilities, binary chemical weapons, and miscellaneous CWM (unfilled munitions and devices and equipment specially designed for use directly in connection with employment of chemical weapons). (HQDA Interim Guidance for

EM 1110-1-4009

23 Jun 00

Biological Warfare Materiel (BWM) and Non-stockpile Chemical Warfare Materiel (CWM) Response Activities)

Non-Time Critical Removal Action (NTCRA)

NTCRAs are actions initiated in response to a release or threat of a release that poses a risk to human health, its welfare, or the environment. Initiation of removal cleanup actions may be delayed for six months or more.

Ordnance and Explosives (OE)

OE consists of either (1) or (2) below:

(1) Ammunition, ammunition components, chemical or biological warfare materiel or explosives that have been abandoned, expelled from demolition pits or burning pads, lost, discarded, buried, or fired. Such ammunition, ammunition components, and explosives are no longer under accountable record control of any DOD organization or activity. (HQDA Policy Memorandum “Explosives Safety Policy for Real Property Containing Conventional OE”)

(2) Explosive Soil. See definition under “Explosive Soil.” (ER 1110-1-8153)

OE Safety Specialist

USACE Personnel, classified as a GS-018 Safety Specialist, and who is UXO qualified. OE Safety Specialists perform safety, quality assurance and UXO subject matter expert functions for the Government. The Safety Specialist may reside in and report to the construction field office or may reside in the engineering/construction office within the OE Design Center. (ER 1110-1-8153)

Preliminary Assessment of Eligibility (PAE)

The PAE is the initial phase of the non-time-critical response action process. A PAE includes a review of existing information and an off-site reconnaissance, if appropriate, to determine if a release may require additional investigation or action. A PAE may include an on-site reconnaissance, if appropriate. The findings of the PAE are reported in the INPR, along with recommendations for further action, if appropriate. This document is used to determine property and project eligibility under DERP-FUDS.

Project Team

The Project Team normally consists of the PM, OE Safety Specialists and multi-disciplined representatives from the technical/functional elements necessary to execute the project.

Quality Assurance (QA)

A process that provides oversight to quality control and involves an audit/review of the quality control process. (ER 1110-1-12)

Quality Control (QC)

A process that monitors and checks the design process to insure that the product will meet agreed-upon requirements of the customer, is on schedule and within budget. (ER 1110-1-12)

Quantity-Distance (Q-D)

The quantity of explosives material and distance separation relationships that provide defined types of protection. These relationships are based on levels of risk considered acceptable for the stipulated exposures and are tabulated in the appropriate Q-D tables provided in DOD 6055.9-STD. Separation distances are not absolute safe distances but are relative protective safe distances. Greater distances than those shown in the Q-D tables shall be used whenever possible. (DOD 6055.9-STD)

Removal Action

The cleanup or removal of OE from the environment to include the disposal of removed materiel. The term includes, in addition, without being limited to, security fencing or other measures to prevent, minimize, or mitigate damage to the public health or welfare or to the environment. (ER 1110-1-8153)

Response Action

Action taken instead of or in addition to a removal action to prevent or minimize the release of OE so that it does not cause substantial danger to present or future public health or welfare or the environment. (ER 1110-1-8153)

Risk Assessment Code (RAC)

An expression of the risk associated with a hazard. The RAC combines the hazard severity and accident probability into a single arabic number on a scale from 1 to 5, with 1 being the greatest risk and 5 the lowest. The RAC is used to prioritize response actions.

Senior UXO Supervisor

Supervises all contractor on-site UXO activities. This individual will be a graduate of the U.S. Army Bomb Disposal School, Aberdeen Proving Ground, MD or the U.S. Naval Explosive Ordnance Disposal School, Indian Head, MD. This individual will have combined active duty military EOD and contractor UXO experience, including experience in supervisory positions. Experience in active duty in military EOD units is required. This individual will have documented experience with or specialized training in the type of OE expected to be encountered on the site. (USAESCH OE MCX Personnel and Work Standards for Ordnance Response, 30 July 1996)

EM 1110-1-4009

23 Jun 00

Site Inspection (SI)

Activities undertaken to determine whether there is a release or potential release and the nature associated threats. The purpose is to augment the data collected in the PAE and to generate, if necessary, sampling and other field data to determine the presence, type, distribution, density and location of OE. The results of the SI are reported in an Archives Search Report (ASR).

(EP 1110-1-18)

Stakeholder

Stakeholders include federal, state, and local officials, community organizations, property owners, and others having a personal interest or involvement, or having a monetary or commercial involvement in the real property which is to undergo an OE response action.

(EP 1110-1-18)

Team Separation Distance.

The TSD is the distance the project teams must be separated during intrusive operations.

Technical Escort Unit (TEU)

Military chemical agent response unit. (EP 1110-1-18)

Time Critical Removal Action (TCRA)

TCRAs respond to a release or threat of release that poses such a risk to public health (serious injury or death), or the environment, that clean up or stabilization actions must be initiated within six months.

Unexploded Ordnance (UXO)

Military munitions that have been primed, fuzed, armed, or otherwise prepared for action, and have been fired, dropped, launched, projected or placed in such a manner as to constitute a hazard to operations, installation, personnel, or material and remain unexploded either by malfunction, design, or any other cause. (40 CFR 266.201)

Unintentional Detonation

A detonation not planned in advance.

UXO Personnel

Contractor personnel who have completed specialized military training in EOD methods and have satisfactorily performed the EOD function while serving in the military. Various grades and contract positions are established based on skills and experience. Check with the OE MCX for current ratings. (ER 1110-1-8153)

UXO Safety Officer (UXOSO)

Contractor personnel with the responsibility of enforcing the contractor's SSHP. This individual must therefore be in the field whenever possible to observe operations. This individual will have the same minimum qualifications as the UXO Supervisor. In addition, this individual will have the specific training, knowledge, and experience necessary to implement the SSHP and verify compliance with applicable safety and health requirements.

UXO Technician I

This individual will be a graduate of the EOD Assistant's Course at Redstone Arsenal, AL; Eglin AFB, FL or a DOD certified equivalent course. A UXO Assistant may advance to a UXO Specialist category after obtaining active duty military EOD and contractor UXO experience. A UXO Assistant will not perform UXO procedures without the direct supervision of a UXO Specialist, UXO Supervisor, or Senior UXO Supervisor.

UXO Technician II

This individual shall be a graduate of the U.S. Army Bomb Disposal School, Aberdeen Proving Ground, MD or U.S. Naval EOD School, Indian Head, MD. The UXO Specialist may be a UXO Assistant with combined military EOD and contractor UXO experience.

UXO Technician III

Supervises a UXO team. This individual will be a graduate of the U.S. Army Bomb Disposal School, Aberdeen Proving Ground, MD or the U.S. Naval Explosive Ordnance Disposal School, Indian Head, MD. This individual will have combined active duty military EOD and contractor UXO experience. This individual will have experience in OE clearance operations and supervising personnel.